

WHAT IS CLAIMED IS:

1. A method of producing a semiconductor integrated circuit device, comprising:
  - (a) forming a MISFET over a semiconductor substrate, said MISFET including a word line as a gate electrode and impurity regions as source/drain regions;
  - (b) forming a first insulating film covering said MISFET;
  - (c) forming a second insulating film over said first insulating film;
  - (d) forming a conductive film over at least said second insulating film and said impurity regions;
  - (e) patterning said conductive film to form a lower electrode of a capacitor element;
  - (f) forming a dielectric film over said lower electrode and said second insulating film; and
  - (g) forming an upper electrode of said capacitor element over said dielectric film,wherein after said step (e), one end of said lower electrode is left over said second insulating film.
2. A method of producing a semiconductor integrated circuit device according to claim 1, wherein in said step (e), said conductive film is patterned using a photoresist film.
3. A method of producing a semiconductor integrated circuit device according to claim 1, wherein in said step (e), said second insulating film is used as an etching stopper.

4. A method of producing a semiconductor integrated circuit device according to claim 1, wherein said lower electrode comprises a poly-silicon film.

5. A method of producing a semiconductor integrated circuit device according to claim 1, wherein said second insulating film comprises a silicon oxide film.

6. A method of producing a semiconductor integrated circuit device performed using at least a sputtering apparatus including a single-loader chamber, a twin-loader chamber, a cleaning chamber and a sputtering chamber, comprising:

- (a) forming a MISFET over a semiconductor substrate;
- (b) forming an insulating over said MISFET; and
- (c) forming a wiring layer over said insulating film within said sputtering apparatus.

7. A method of producing a semiconductor integrated circuit device according to claim 6, wherein said wiring layer is stacked films, and wherein said stacked films are continuously formed within said sputtering apparatus.

8. A method of producing a semiconductor integrated circuit device according to claim 6, wherein said wiring layer includes aluminum as the main ingredient.

9. A method of producing a semiconductor integrated circuit device according to claim 6, wherein said step (c) comprises:

- (c1) after step (b), cleaning a main surface of said semiconductor substrate including a surface of said insulating film within said cleaning chamber; and

(c2) after said step (c1), forming said wiring layer over said insulating film within said sputtering chamber.

10. A method of producing a semiconductor integrated circuit device, comprising:

(a) forming a first refractory metal film or a first refractory metal silicide film over a main surface of a semiconductor substrate;

(b) forming a metal film over said first refractory metal film or first refractory metal silicide film; and

(c) forming a second refractory metal film or a second refractory metal silicide film over said metal film,

wherein steps (a), (b) and (c) are performed using a sputtering apparatus, and said sputtering apparatus includes a single-loader chamber, a twin-loader chamber, a cleaning chamber and a sputtering chamber, and

wherein said steps (a), (b) and (c) are continuously performed within said sputtering apparatus.

11. A method of producing a semiconductor integrated circuit device according to claim 10, wherein said metal film includes aluminum as the main ingredient.

12. A method of producing a semiconductor integrated circuit device according to claim 10,

wherein said sputtering chamber includes a first sputter portion, a second sputter portion and a third sputter portion,

wherein said first sputter portion is provided with a first target consisting of said first refractory metal or said first refractory silicide,

wherein said second sputter portion is provided with a second target consisting of said metal, and

wherein said third sputter portion is provided with a third target consisting of said second refractory metal or said second refractory metal silicide.

13. A method of producing a semiconductor integrated circuit device according to claim 12, wherein said metal includes aluminum as the main ingredient.

14. A method of producing a semiconductor integrated circuit device according to claim 10, further comprising a step (d):

(d) before said step (a), cleaning said main surface of said semiconductor substrate within said cleaning chamber.